

CONSTRUCTION MATERIALS
Foster County, North Dakota

Construction Materials

These tables give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated good, fair, or poor as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a probable or improbable source of sand and gravel. A rating of probable means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the first table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

CONSTRUCTION MATERIALS--Continued
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(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1: Southam-----	84	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2: Parnell-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
3: Tonka-----	74	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4: Manfred-----	73	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
7: Colvin, Wet-----	78	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
8: Minnewaukan-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.11 0.12
9: Lallie, Saline-----	28	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Minnewaukan-----	26	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.11 0.12
10: Colvin, saline, loamy Substratum-----	52	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Arveson, saline, loamy Stratum-----	27	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.04
17: Vallers, Saline-----	43	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hamerly, Saline-----	21	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
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(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
21: Svea-----	63	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
22: Svea-----	44	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Barnes-----	36	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
23: Hamerly-----	62	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Wyard-----	23	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
24: Hamerly-----	59	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Parnell-----	13	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
25B: Barnes, Loamy Substratum-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Maddock, Loamy Substratum-----	17	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.22
26B: Barnes-----	47	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Svea-----	34	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
27B: Barnes-----	39	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Buse-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
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(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
27C: Barnes-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Buse-----	26	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
28F: Barnes-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Buse-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
29D: Buse-----	53	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Svea-----	26	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
30C: Barnes-----	27	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Maddock-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.06 0.16
Swenoda-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.03
31: Fram-----	66	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Parnell-----	28	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
33: Fram-----	57	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Wyard-----	13	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
36: Heimdal-----	54	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Emrick-----	34	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
36B: Heimdal-----	63	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Emrick-----	24	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
37B: Esmond-----	34	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Heimdal-----	32	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
37C: Heimdal-----	44	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Esmond-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
38F: Esmond-----	31	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Heimdal-----	31	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
39D: Esmond-----	44	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Heimdal-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
41B: Embsden-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.06 0.08

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
42: Wyndmere, Loamy Substratum-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.07
Arveson, Loamy Substratum-----	9	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.04
51: Bearden, Sandy Substratum-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.22
52: Glyndon-----	64	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
60: Cathay-----	42	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Heimdal-----	22	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
60B: Heimdal-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Cathay-----	29	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
61: Larson-----	38	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Cathay-----	26	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
62: Miranda-----	47	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Larson-----	13	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
67: Letcher-----	63	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.03 0.04
71: Spottswood-----	62	Poor Thickest layer Bottom layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.09
72: Divide-----	84	Poor Thickest layer Bottom layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
77B: Arvilla-----	60	Poor Thickest layer Bottom layer	0.00 0.00	Fair Bottom layer Thickest layer	0.06 0.08
78C: Sioux-----	58	Poor Thickest layer Bottom layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Arvilla-----	17	Poor Thickest layer Bottom layer	0.00 0.00	Fair Bottom layer Thickest layer	0.06 0.08
78F: Coe-----	52	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.03
Heimdal-----	19	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
80: Towner-----	38	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.22
Barnes-----	18	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
81: Hecla, Loamy Substratum-----	79	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.14
82B: Towner-----	63	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.22

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
84B: Lohnes-----	52	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.33 0.63
86B: Maddock-----	74	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.12 0.22
89D: Maddock-----	29	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.12 0.22
Barnes-----	24	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Towner-----	13	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.22
90: Hecla-----	36	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.16 0.16
Ulen-----	32	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.14 0.22
91B: Swenoda-----	69	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.03
95: Colvin, Channeled---	38	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
La Prairie, Channeled-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
96: La Prairie-----	87	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
99: Pits, Sand And Gravel-----	90	Not rated		Not rated	
102: Kratka-----	83	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.59

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
W: Water-----	100	Not rated		Not rated	

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Southam-----	84	Poor Too clayey Carbonate content Water erosion	0.00 0.92 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Too Clayey Salinity	0.00 0.00 0.88
2: Parnell-----	80	Poor Too clayey Water erosion	0.00 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Too Clayey	0.00 0.00
3: Tonka-----	74	Fair Low content of organic matter Water erosion	0.50 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.76	Poor Depth to saturated zone	0.00
4: Manfred-----	73	Poor Sodium content Carbonate content Salinity	0.00 0.92 0.97	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Sodium content Salinity Carbonate content	0.00 0.00 0.00 0.92
7: Colvin, Wet-----	78	Fair Carbonate content Water erosion	0.80 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.87	Poor Depth to saturated zone Carbonate content	0.00 0.80
8: Minnewaukan-----	80	Poor Wind erosion Low content of organic matter Droughty Too sandy	0.00 0.50 0.71 0.78	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too sandy Rock fragments	0.00 0.78 0.88
9: Lallie, Saline-----	28	Poor Too clayey Salinity Water erosion	0.00 0.88 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Too Clayey Salinity	0.00 0.00 0.00
Minnewaukan-----	26	Poor Wind erosion Low content of organic matter Droughty Too sandy	0.00 0.50 0.71 0.78	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too sandy Rock fragments	0.00 0.78 0.88

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10: Colvin, saline, loamy Substratum-----	52	Fair Carbonate content Salinity Sodium content Water erosion	0.68 0.88 0.97 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.87	Poor Depth to saturated zone Salinity Carbonate content Sodium content	0.00 0.00 0.68 0.98
Arveson, saline, loamy Stratum-----	27	Fair Low content of organic matter Salinity	0.12 0.88	Poor Depth to saturated zone	0.00	Poor Salinity Depth to saturated zone	0.00 0.00
17: Vallers, Saline----	43	Fair Low content of organic matter Carbonate content Salinity Water erosion	0.50 0.68 0.88 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.89	Poor Depth to saturated zone Salinity Carbonate content Sodium content	0.00 0.00 0.80 0.98
Hamerly, Saline----	21	Fair Low content of organic matter Carbonate content Salinity Water erosion	0.50 0.68 0.88 0.99	Fair Shrink-swell Depth to saturated zone	0.87 0.91	Poor Salinity Carbonate content Depth to saturated zone	0.00 0.68 0.91
21: Svea-----	63	Fair Water erosion	0.99	Fair Shrink-swell	0.96	Good	
22: Svea-----	44	Fair Water erosion	0.99	Fair Shrink-swell	0.96	Good	
Barnes-----	36	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
23: Hamerly-----	62	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.99	Fair Shrink-swell Depth to saturated zone	0.87 0.91	Fair Carbonate content Depth to saturated zone	0.68 0.91
Wyard-----	23	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.97 0.99	Fair Depth to saturated zone Shrink-swell	0.53 0.87	Fair Depth to saturated zone	0.53

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24: Hamerly-----	59	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.68 0.99	Fair Shrink-swell Depth to saturated zone	0.87 0.91	Fair Carbonate content Depth to saturated zone	0.68 0.91
Parnell-----	13	Poor Too clayey Water erosion	0.00 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Too Clayey	0.00 0.00
25B: Barnes, Loamy Substratum-----	35	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
Maddock, Loamy Substratum-----	17	Fair Too sandy Low content of organic matter	0.22 0.88	Good		Fair Too sandy	0.22
26B: Barnes-----	47	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
Svea-----	34	Fair Water erosion	0.99	Fair Shrink-swell	0.96	Good	
27B: Barnes-----	39	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
Buse-----	30	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
27C: Barnes-----	40	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
Buse-----	26	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92

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(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28F: Barnes-----	40	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Slope Shrink-swell	0.50 0.87	Poor Slope Carbonate content	0.00 0.92
Buse-----	25	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Poor Slope Shrink-swell	0.00 0.87	Poor Slope Carbonate content	0.00 0.92
29D: Buse-----	53	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Slope Carbonate content	0.37 0.92
Svea-----	26	Fair Water erosion	0.99	Fair Shrink-swell	0.96	Fair Slope	0.37
30C: Barnes-----	27	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Carbonate content	0.92
Maddock-----	20	Fair Too sandy Low content of organic matter	0.50 0.88	Good		Fair Too sandy	0.50
Swenoda-----	20	Fair Carbonate content Water erosion	0.92 0.99	Good		Good	
31: Fram-----	66	Fair Water erosion	0.99	Good		Good	
Parnell-----	28	Poor Too clayey Water erosion	0.00 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Too Clayey	0.00 0.00
33: Fram-----	57	Fair Water erosion	0.99	Good		Good	
Wyard-----	13	Fair Low content of organic matter Carbonate content Water erosion	0.12 0.97 0.99	Fair Depth to saturated zone Shrink-swell	0.53 0.87	Fair Depth to saturated zone	0.53
36: Heimdal-----	54	Fair Water erosion	0.99	Good		Good	

CONSTRUCTION MATERIALS--Continued
Foster County, North Dakota

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Emrick-----	34	Fair Water erosion	0.99	Good		Good	
36B: Heimdal-----	63	Fair Water erosion	0.99	Good		Good	
Emrick-----	24	Fair Water erosion	0.99	Good		Good	
37B: Esmond-----	34	Fair Low content of organic matter Water erosion	0.12 0.99	Good		Good	
Heimdal-----	32	Fair Water erosion	0.99	Good		Good	
37C: Heimdal-----	44	Fair Water erosion	0.99	Good		Good	
Esmond-----	30	Fair Low content of organic matter Water erosion	0.12 0.99	Good		Good	
38F: Esmond-----	31	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Slope	0.00	Poor Slope	0.00
Heimdal-----	31	Fair Water erosion	0.99	Fair Slope	0.50	Poor Slope	0.00
39D: Esmond-----	44	Fair Low content of organic matter Water erosion	0.12 0.99	Good		Fair Slope	0.37
Heimdal-----	30	Fair Water erosion	0.99	Good		Fair Slope	0.37
41B: Embsden-----	50	Good		Good		Good	
42: Wyndmere, Loamy Substratum-----	35	Fair Carbonate content Low content of organic matter	0.46 0.50	Good		Fair Carbonate content	0.46
Arveson, Loamy Substratum-----	9	Fair Low content of organic matter	0.12	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00

CONSTRUCTION MATERIALS--Continued
Foster County, North Dakota

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51: Bearden, Sandy Substratum-----	55	Fair Carbonate content Water erosion	0.46 0.90	Fair Shrink-swell	0.94	Fair Carbonate content	0.46
52: Glyndon-----	64	Good		Good		Good	
60: Cathay-----	42	Good		Fair Shrink-swell	0.87	Fair Salinity	0.50
Heimdal-----	22	Fair Water erosion	0.99	Good		Good	
60B: Heimdal-----	30	Fair Water erosion	0.99	Good		Good	
Cathay-----	29	Good		Fair Shrink-swell	0.87	Fair Salinity	0.50
61: Larson-----	38	Fair Sodium content Low content of organic matter Carbonate content Salinity Water erosion	0.22 0.50 0.80 0.88 0.99	Fair Shrink-swell	0.87	Fair Sodium content Carbonate content Salinity	0.60 0.80 0.88
Cathay-----	26	Good		Fair Shrink-swell	0.87	Fair Salinity	0.50
62: Miranda-----	47	Poor Sodium content Low content of organic matter Salinity	0.00 0.50 0.88	Fair Shrink-swell	0.87	Poor Sodium content Salinity	0.00 0.00
Larson-----	13	Fair Sodium content Low content of organic matter Carbonate content Salinity Water erosion	0.22 0.50 0.80 0.88 0.99	Fair Shrink-swell	0.87	Fair Sodium content Carbonate content Salinity	0.60 0.80 0.88
67: Letcher-----	63	Fair Low content of organic matter	0.12	Good		Good	
71: Spottswood-----	62	Fair Low content of organic matter	0.12	Good		Poor Hard to reclaim	0.00

CONSTRUCTION MATERIALS--Continued
Foster County, North Dakota

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72: Divide-----	84	Fair Low content of organic matter Carbonate content	0.50 0.68	Fair Depth to saturated zone	0.91	Fair Hard to reclaim Carbonate content Depth to saturated zone Rock fragments	0.18 0.68 0.91 0.97
77B: Arvilla-----	60	Fair Low content of organic matter Droughty	0.12 0.32	Good		Poor Rock fragments Hard to reclaim	0.00 0.50
78C: Sioux-----	58	Fair Low content of organic matter Droughty	0.12 0.52	Good		Poor Rock fragments Hard to reclaim	0.00 0.00
Arvilla-----	17	Fair Low content of organic matter Droughty	0.12 0.32	Good		Poor Rock fragments Hard to reclaim	0.00 0.50
78F: Coe-----	52	Poor Droughty Low content of organic matter	0.00 0.12	Fair Slope	0.18	Poor Rock fragments Slope Hard to reclaim	0.00 0.00 0.02
Heimdal-----	19	Fair Water erosion	0.99	Fair Slope	0.18	Poor Slope	0.00
80: Towner-----	38	Fair Low content of organic matter Too sandy Water erosion Carbonate content	0.12 0.22 0.90 0.92	Fair		Fair Too sandy	0.22
Barnes-----	18	Fair Low content of organic matter Water erosion	0.50 0.99	Fair Shrink-swell	0.87	Good	
81: Hecla, Loamy Substratum-----	79	Fair Too sandy Low content of organic matter	0.62 0.88	Good		Fair Too sandy	0.62

CONSTRUCTION MATERIALS--Continued
Foster County, North Dakota

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
82B: Towner-----	63	Poor Wind erosion Low content of organic matter Too sandy Water erosion Carbonate content	0.00 0.12 0.22 0.90 0.92	Fair		Fair Too sandy	0.22
84B: Lohnes-----	52	Poor Too sandy Wind erosion Droughty Low content of organic matter	0.00 0.00 0.05 0.12	Good		Poor Too sandy	0.00
86B: Maddock-----	74	Poor Wind erosion Low content of organic matter Too sandy Droughty	0.00 0.12 0.22 0.98	Good		Fair Too sandy	0.22
89D: Maddock-----	29	Poor Wind erosion Low content of organic matter Too sandy Droughty	0.00 0.12 0.22 0.98	Good		Fair Too sandy Slope	0.22 0.63
Barnes-----	24	Fair Low content of organic matter Carbonate content Water erosion	0.50 0.92 0.99	Fair Shrink-swell	0.87	Fair Slope Carbonate content	0.63 0.92
Towner-----	13	Poor Wind erosion Low content of organic matter Too sandy Water erosion Carbonate content	0.00 0.12 0.22 0.90 0.92	Fair		Fair Too sandy	0.22
90: Hecla-----	36	Fair Too sandy	0.50	Good		Fair Too sandy	0.50
Ulen-----	32	Fair Too sandy Droughty	0.62 0.93	Good		Fair Too sandy	0.62
91B: Swenoda-----	69	Fair Carbonate content Water erosion	0.92 0.99	Good		Good	

CONSTRUCTION MATERIALS--Continued
Foster County, North Dakota

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95: Colvin, Channeled---	38	Fair Carbonate content Water erosion	0.46 0.90	Poor Depth to saturated zone Shrink-swell	0.00 0.87	Poor Depth to saturated zone Carbonate content	0.00 0.46
La Prairie, Channeled-----	35	Fair Carbonate content	0.92	Fair Shrink-swell	0.87	Good	
96: La Prairie-----	87	Fair Carbonate content	0.92	Fair Shrink-swell	0.87	Good	
99: Pits, Sand And Gravel-----	90	Not rated		Not rated		Not rated	
102: Kratka-----	83	Poor Too sandy Low content of organic matter	0.00 0.88	Fair Depth to saturated zone Shrink-swell	0.29 0.99	Poor Too sandy Depth to saturated zone	0.00 0.29
W: Water-----	100	Not rated		Not rated		Not rated	

